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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,935

08/18/2006

Nicolas Lucas

Serie 6510

2430

65792

7590

11/24/2008

AIR LIQUIDE INTELLECTUAL PROPERTY DEPT.  
2700 POST OAK BLVD.  
SUITE 1800  
HOUSTON, TX 77056

EXAMINER

YANG, JIE

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

11/24/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/589,935	<b>Applicant(s)</b> LUCAS ET AL.	
	<b>Examiner</b> JIE YANG	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 August 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 13-23 and 25-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-23, 25-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Claims 1-12 and 24 have been cancelled; claims 13, 14, and 17-23 have been amended; claims 25-27 are added as new claims; and claims 13-23, and 25-27 are pending in application.

#### ***Status of the Precious Rejection***

The previous rejections of claims 13, 14, 17, 18, 21, and 24 are rejected under 35 U.S.C. 112, second paragraph have been withdrawn in view of the amendment filed on 8/5/2008.

The previous rejection of claim 24 under 35 U.S.C. 102(b) as anticipated by Allemand (WO 2004099453, cited using its English equivalent, US2007/0034054) has been withdrawn in view of the cancellation of the claim.

#### ***Claim Rejections - 35 USC § 102***

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 13-23, 25, and 27 are rejected under 35 U.S.C. 102 (a) or (b) as anticipated by Allemand (WO 2004099453, cited using its English equivalent, PG-pub US2007/0034054, thereafter PG'054).

PG'054 is applied to claims 13-23 for the same reason as stated in the previous office action marked 3/5/2008.

Art Unit: 1793

Regarding the amended feature of setting setpoint C2 and C1 by regulating at least one of carbon monoxide and hydrogen in the instant claim 13 and newly added claim 27, PG'054 teaches regulating CO and/or H<sub>2</sub> to the setpoints C1 and C2 (Paragraphs [0018]-[0031], claims 13, 18, and 21 of PG'054). Regarding the process steps of Al melting, CO and H<sub>2</sub> measuring, and CO and H<sub>2</sub> regulating in the instant claim 27, which are the similar steps as recited in claim 13, the Examiner's position can refer the rejection for claim 13 in the previous office action marked 3/5/2008.

Regarding newly added claim 25, PG'054 teaches the volumetric ratio of oxygen to fuel is preferably between 1.5 to 3 (claim 22 of PG'054), which is the same range as recited in the instant claim 25.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over PG'054.

Regarding newly added claim 26, PG'054 teaches (claims 23 and 33 of PG'054) the second gas is substantially constant and the value between about 1% to about 8%, which overlaps the range of 6% to 10% as recited in the instant claim 26.

Claims 13-23 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ducrocq (WO 03056044, cited using its English equivalent, PG-pub US 2005/0103159, thereafter PG'159) in view of Meyers et al (US 6,245,122, thereafter, US'122).

PG'159 in view of US'122 is applied to claims 13-23 for the same reason as stated in the previous office action marked 3/5/2008.

Regarding the amended feature of setting setpoints C2 and C1 by regulating at least one of carbon monoxide and hydrogen in the instant claim 13 and the newly added claim 27, setpoints C1 and C2 are recognized as result-effective variables in term of aluminum melting. This point is evidenced by PG'159. PG'159 teaches that the analysis of the CO and H<sub>2</sub> concentrations during melting in a furnace fitted with a burner operation in combustion mode with oxygen may be used as a basis for regulating an aluminum melting process (Fig.6a-6c, page 6,

Art Unit: 1793

paragraph [0139]-[0144] of PG'159). PG'159 teaches the computer gives a setpoint value to the feed means (paragraph [0143] of PG'159). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select proper setpoints C1 and C2 in the process of PG'159 in view of US'518 in order to obtain the desired aluminum melting result as demonstrated in PG'159. MPEP 2144.05 II. Regarding the process steps of Al melting, CO and H<sub>2</sub> measuring, and CO and H<sub>2</sub> regulating in the instant claim 27, which is the similar steps as recited in claim 13, the Examiner's position can refer the rejection for claim 13 in the previous office action marked 3/5/2008.

Regarding newly added claim 25, PG'159 teaches (Paragraphs [0144] of PG'159) modifying the ratio of flow rates of fuel and oxidizer delivered to the burner with usually a slight oxygen excess (oxygen content in the flue gases between 0 and 2 to 3% oxygen) and further controlling the oxidizer flow rate/fuel flow rate of 100% or even lower to 70%. Although PG'159 does not specify the volumetric ratio of oxygen to fuel, the oxidizer flow rate/fuel flow rate taught in PG'159 directly relates to the volumetric ratio of oxygen to fuel. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to control the volumetric ratio of oxygen to

Art Unit: 1793

fuel in the process of PG'159 in view of US'122 by controlling the oxidizer flow rate/fuel flow rate as demonstrated by PG'159 in order to control the Al melting process (Fig.6a-6c, page 6, paragraph [0139]-0144] of PG'159).

Regarding claim 26, PG'159 teaches that the CO or H<sub>2</sub> concentration is regulated at a value about 3 vol% and about 10vol% (Fig.6b and 6a of PG'159) which overlaps the range of 6 to 10vol% as recited in the instant claim 26.MPEP 2144.05 I.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 13-23, and 25-27 are rejected on the ground of nonstatutory obviousness type double patenting as being unpatentable over claims 13-33 of copending application No. 10/555313.

Claims 13-33 of copending application No. 10/555313 are applied on claims 13-23 for the same reason as stated in the previous office action marked 3/5/2008.

Regarding the amended features in the instant claim 13, PG'054 teaches regulating CO and/or H<sub>2</sub> to the setpoints C1 and C2 (Paragraphs [0018]-[0031], claims 13, 18, and 21 of PG'054).

Regarding newly added claim 27, claims 13 and 32 of the copending application No. 10/555313 teaches: reducing the oxidation comprises holding the flow rate of said oxidizer substantially constant while varying the flow rate of said fuel according to the concentration of second gas in said furnace atmosphere or in said flue gas and claim 27 and 32 further teaches controlling the gas atmosphere by setting the set points, which reads on the limitations of claim 27.

Regarding newly added claims 25 and 26, claim 21 of the copending application No. 10/555313 teaches the volumetric ratio of oxygen to fuel is preferably between 1 to 5, which covers the range 1.5 to 3 as recited in the instant claim 25; and claim 23 of the copending application No. 10/555313 teaches the second



Art Unit: 1793

gas concentration from 1 to 8 which overlaps the range of 6 to 10vol% as recited in the instant claim 26.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented

Claims 13-23, and 25-27 are rejected on the ground of nonstatutory obviousness type double patenting as being unpatentable over claims 31-63 of copending application No. 10/497454 in view of US'122.

Claims 31-63 of copending application No. 10/497454 are applied on claims 13-23 for the same reason as stated in the previous office action marked 3/5/2008.

Regarding the amended features in the instant claim 13, setpoints C1 and C2 are recognized as result-effective variables in term of aluminum melting. This point is evidenced by PG'159. PG'159 teaches that the analysis of the CO and H<sub>2</sub> concentrations during melting in a furnace fitted with a burner operation in combustion mode with oxygen may be used as a basis for regulating an aluminum melting process (Fig.6a-6c, page 6, paragraph [0139]-[0144] of PG'159). PG'159 teaches the computer gives a setpoint value to the feed means (paragraph [0143] of PG'159). Therefore, it would have been obvious to one of

Art Unit: 1793

ordinary skill in the art at the time the invention was made to select proper setpoints C1 and C2 in the process of PG'159 in view of US'518 in order to obtain the desired aluminum melting result as demonstrated in PG'159. MPEP 2144.05 II.

The copending application No. 10/497454 further teaches modifying the stoichiometry of said burner after detecting formation of said oxide and the ratio range of oxidizer flow rate/fuel rate, which reads on the limitations of gas controlling as recited in the newly added claims 25-27.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented

### ***Response to Arguments***

Applicant's arguments filed on 8/5/2008 with respect to claims 13-23 and 25-27 have been fully considered but they are not persuasive. Regarding the arguments related to the amended features in the instant claims, the Examiner's position is stated as above.

Applicants argue:

A) Regarding to the rejection of claims 13-23 under 35 U.S.C. 102 (a) or (b) as anticipated by Allemand (WO 2004099453, cited using its English equivalent, PG-pub

Art Unit: 1793

US2007/0034054), Allemand fails to qualify as prior art given the priority claim of the present application;

B) The Examiner has not properly characterized the teachings of the references and/or the claims at issue, for example, Ducrocq (PG'159) and Meyers et al (US'122) lack any indication of regulation to two different setpoints;

In response:

Regarding argument A), Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Regarding argument B), The setpoints C1 and C2 are recognized as result-effective variables in term of aluminum melting, which is evidenced by PG'159. PG'159 teaches of the analysis of the CO and H<sub>2</sub> concentrations during melting in a furnace fitted with a burner operation in combustion mode with oxygen, which may be used as a basis for regulating an aluminum melting process (Fig.6a-6c, page 6, paragraph [0139]-[0144] of PG'159). PG'159 teaches the computer gives a setpoint value to the feed means (paragraph [0143] of PG'159). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to select proper setpoints C1 and C2 in the process of PG'159 in view of US'122 in order to obtain the desired aluminum melting result as demonstrated in PG'159.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jie Yang whose telephone number is 571-2701884. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-2721244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JY

/Roy King/  
Supervisory Patent Examiner, Art Unit 1793